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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,073	12/31/2003	Shen-Kan Hsiung	003-03-033	1871
35870	7590	07/26/2005	EXAMINER	
APEX JURIS, PLLC 13194 EDGEWATER LANE NORTHEAST SEATTLE, WA 98125			RAO, SHRINIVAS H	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/750,073

Applicant(s)

HSIUNG ET AL.

Examiner

Steven H. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/23/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Response to Amendment

Applicants' amendment faxed on May 23, 2005 has been entered and forwarded to the examiner on May 27, 2005.

Therefore claim 1 as amended by the amendment and claims 2 to 8 as previously recited are currently pending in the Application.

Information Disclosure Statement

Acknowledgment is made of receipt of Applicant's Information Disclosure Statement (PTO-1449) filed on 05/23/2005.

The references submitted on 05/23/2005 are acknowledged. All the cited references have been considered.

However the foreign patents and documents (in languages other than English and without a translation) cited by applicant are considered to the extent that could be understood from the abstract and drawings.

Claim Rejections - 35 USC Section 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Hsiung et al. (U.S Patent No. 6,236,075 , herein after Hsiung) in view of Kinlen et al. (U.S. Patent No. 5,110,441, herein after Kinlen).

With respect to claim 1 Hsiung describes a method for fabricating an array PH sensor and a readout circuit device of said array PH sensor, comprising'. depositing a non-conductive PH sensing film onto an non-insulated substrate, (Hsiung figure 2G # 25, col. 3 lines 38-40 and claim 8) thereby fabricating a separate array PH sensor and detecting the PH value of the solution by using said array PH sensor', (Hsiung figure 4, col. 3 lines 54 to 62).

Hsiung does not specifically describe fabricating a readout circuit device of said array PH sensor according to the typical processes for making semiconductors. However, Kinlen, a patent from the same field of endeavor describes in figures 26, 27 etc. describe fabricating a readout circuit device of said array PH sensor according to a conventional processes for making semiconductors to provide acceptable drift of electrode potential and dramatically improve performance of the system and provide an electrode with constant Nernstian response.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Kinlen's readout circuit device in Husing's method , the motivation to make the above combination is to provide acceptable drift of electrode potential and dramatically improve performance of the system and provide an electrode with constant Nernstian response. (Kinlen col 21 lines 43 to 51).

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The remaining limitations of claim 1 : and combining said array PH sensor and said readout circuit device as a hybrid array PH sensor. (Kinlen figure 26, col. 30 line 59 to col. 31 col. 32 line 14).

With respect to claim 2 Hsiung describes for fabricating an array PH sensor and a readout circuit device of said array PH sensor according to claim 1, wherein said array PH sensor is fabricated by the following steps: Step 1: providing a substrate', (Hsiung figure 2a # 20) Step 2: growing an A1 film by using a metallic mask and a vacuum evaporation machine (Hsiung figure 2 E col. 3 lines 23 to 25, Hsiung col. 14 line 66) Step 32 growing a SnO₂ film by using a metallic mask and a sputter machine, (Hsiung figure 2G, col. 3 line 31 , lines 38-40) and Step 4: encapsulating the resulting product with epoxy resin. (Husing Figure 2 H , col. 3 lines 41 to 46).

With respect to claim 3 Hsiung describes the method for fabricating an array PH sensor and a readout circuit device of said array PH sensor according to claim 1, wherein said array PH sensor has a tin dioxide/metal silicon dioxide multi-layer structure or a tin dioxide/indium tin oxide/glass multi-layer structure. (Hsiung figure 2 H, layers 21 ,25, etc., Abstract last two lines from bottom, col. 2 lines 5-7)

With respect to claim 4 Hsiung describes the method for fabricating an array PH sensor and a readout circuit device of said array PH sensor according to claim 1, wherein said array PH sensor comprises a pre-readout circuit, (Kinlen figure 26 the circuit formed by 402,t0 408) a multiplexer, a rear end buffer circuit (Kinlein fig. 26 , #.408, digital controller buffers the input current and then converts the current) and an amplifier circuit. (Kinlen fig. 26 #.404).

With respect to claim 5 Hsiung describes the method for fabricating an array PH sensor and a readout circuit device of said array PH sensor according to claim 2, wherein said substrate is selected from a glass substrate, a silicon substrate, a ceramic substrate or a polymeric substrate. (Hsiung line 64-silicon, Kinlen col. 20 ex. 1 - ceramic ,glass ,etc.)

With respect to claims 6 and 7 Hsiung describes the method for fabricating an array PH sensor and a readout circuit device of said array PH sensor according to claim 3, wherein said tin dioxide/metal/silicon dioxide structure is formed by depositing an aluminum layer and a tin dioxide layer onto said substrate, and encapsulating the resulting structure with epoxy resin to form a opening channel, (see above rejections) wherein a conducting line is led out via said aluminum layer. (Hsiung figure 2E , etc. # 24 a-aluminum plugs , col 3 line 26).

With respect to claim 8 Hsiung describes the method for fabricating an array PH sensor and a readout circuit device of said array PH sensor according to claim 4, wherein said readout circuit device of said array PH sensor receives different signals (Hsiung figure 26 404-408 all receive different signals) and amplifies these signals for determination (Hsiung fig. 26 404) such that when the multiplexer is modified, (Hsiung fig. 26 # 406 , col. 31 lines 10-25) a variety of array sensors can be fabricated (Kinlen col. 1 line 17, etc.) and said array sensor can be applied for fabrication of potentiometric sensor.

The recitation " said array sensor can be applied for fabrication of photometric sensor is taken to be an intended use recitation and does not differentiate the apparatus

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obtained by recited method from the apparatus obtained by the prior art method satisfying the claimed structural limitations. Ex parte Masham 2 USPQ 2d 1647 (1987).

Response to Arguments

Applicant's arguments filed on May 27, 2005 have been fully considered but they are not persuasive for the following reasons :

Applicants' first contention that their specification page 1 lines 7-10 and page 7 lines 20-25 and page 8 line 1 allegedly describe a structure to separate the sensor and the general metal oxide semiconductor field effect transistor and the claim (1) recitation : " thereby fabricating a separate array pH sensor and detecting pH value of the solution by using said array pH sensor " is somehow supposed to recite " a structure to separate the sensor and the general metal oxide semiconductor field effect transistor " is not persuasive because it is not commensurate with scope of the presently recited claims.

It is noted for the record that limitations from the specification cannot be relied upon to distinguish Applicants' invention from the prior art. Since it is the language itself of the claims which must particularly point out and distinctly claim the subject matter which the applicant regards as his invention, without limitations imported from the specifications, whether such language is couched in terms of means plus function or consists of a detailed recitation of the inventive matter. Limitations in the specification not included in the claim may not be relied upon to impart patentability to an otherwise unpatentable claim. In re Lundberg, 113 USPQ 530 (CCPA 1957).

If applicants' want to distinguish their claims on the basis of the structure to separate the sensor and the general metal oxide semiconductor field effect transistor

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then the present recitation of "thereby fabricating a separate array pH sensor and detecting pH value of the solution by using said array pH sensor" when given their broadest possible interpretation does not remotely mention a structure that separates the sensor and the general metal oxide semiconductor field effect transistor.

It is noted for the record claim 1 as presently recited not only is silent regarding a separator and how the separator is made (as all pending claims are process claims), but in the last clause claim 1 positively recites :

combining said array pH sensor and said readout circuit device as a hybrid array PH sensor.

If Applicants' want to distinguish their claims on the above basis their claims must recite regarding a separator and how the separator is made (as all pending claims are process claims.

Applicants' second contention , to the extent understood , states :

"Therefore, because the prior references cited by the Examiner are based on an ISFET and the present invention is based on an extended ISFET there can be no motivation to combine and because prior disclosure discusses a different transistor there can also be no reasonable expectation of success. Finally the prior references cannot teach or suggest all the claim limitations of the present invention because the prior references discuss a different transistor. "

Firstly it is noted that extended ISFET is a subset of ISFET and not only will one of ordinary skill in the art would be motivated to combine the ISFET but rather it is

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absolutely necessary to have an ISFET (the genius) and then work on it to form modifications like extended ISFET.

Further it is noted for the records that the transistors are the same in ISFET and extended ISFET and it is not understood what Applicants' mean by extended ISFET . (emphasis supplied) . The specification including drawings or any other place in the Application clearly set out what is an extended ISFET and all of the above specification ,drawings etc. only show an ISFET .

Applicants' arguments regarding claims 2-8 basically state that since claim 1 is allegedly allowable, therefore dependent claims 2-8 must also be allowable

However as shown above claim 1 is not allowable, therefore claims 2-8 are also not allowable.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (571) 272-1718 can normally be reached on 8.00 to 5.00.


The fax phone number for the organization where this application or proceeding

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is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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Patent Examiner
July 14, 2005.



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